



BRETT MEEKER

BARIUM

Element Symbol: **Ba**

Atomic Number: **56**

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Barium has the chemical symbol Ba and the atomic number 56. Its name is derived from the greek word barys meaning heavy due to the high density of some barium containing compounds. In its pure form, barium is a soft silvery metal but it does not exist like this in nature due to its high reactivity. It is most commonly found as the minerals witherite (barium carbonate) or barite (barium sulfate). While Australia is not one the world's major producers of barite, it has been mined in small quantities in most states and annual production is approximately 15 - 20 000 metric tons.

Interest in barium containing substances can be traced back to the 1500s. Stones discovered near Bologna, Italy were found to glow following exposure to sunlight (this is now known to be due to the presence of phosphorescent barium sulphide as an impurity in the stones of barite). These became known as the 'bolonga stones' and attracted the attention of alchemists for many years. In 1774 the Swedish chemist Carl Scheele studied the bologna stone and established that it was composed of a new element. However, it wasn't until 1808 that pure barium was isolated from molten barium oxide by the English chemist Sir Humphry Davy, who gave the new element it name.

Due to the high reactivity of elemental barium its uses are limited. Its main application is the removal of unwanted oxygen from electronic vacuum tubes, such as television cathode ray tubes (it rapidly reacts to form barium oxide).

In contrast to pure barium, barium minerals have a wide range of uses. At the beginning of the 19th century barium salts were used as medications for a number of conditions but as the toxicity of these compounds became apparent these practices were discontinued. Currently the only use of barium in medicine is the "barium meal" or "barium enema", which is used for radioimaging of the digestive tract. Barium sulfate is used for this procedure because unlike other barium salts it cannot be absorbed by the body so it has no toxic effects. The toxicity of barium compounds has also been exploited with barium carbonate being used both in both rat poison and insecticides.

Barium sulfate is important in industry. It is used as a weighting agent for drilling new oil wells and as a smoke suppressant in diesel fuels in the petroleum industry. It is added to paints, plastics, rubber and resins and is used in the production of "leaded glass", which stops the emission of radiation from computer monitors and TV tubes. Recently it has also been used in the production of brake pads and clutches for cars and trucks and has been added to cement to make containers to store radioactive materials.

While barium sulfate is the most widely used barium compound other barium minerals have also found applications. Barium carbonate is used in the manufacture of ceramics and some types of glass. Because barium compounds emit a green light when burned the nitrate and chlorate salts are used in signal flares and fireworks.

Provided by the element sponsor Kerrie Austin

ARTISTS DESCRIPTION

"Ba 56" is an aluminium etching plate. The image is my rendition of a Barium x-ray of one's internal organs. The image is printed in Charbenelle black ink.

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